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I claim:

1. Contrast media for ultrasound imageenhancement comprising microbubbles of a biocompatible gas having a Q coefficient greater than 5 where

 $Q = |4.0 \times 10^{-7} \times \rho/C_sD$

and ρ is the density of the gas (Kgm⁻³), C_s is the water solubility of the gas (M) and D is the diffusivity of the gas in solution (cm³sec⁻¹).

- 2. Contrast media of claim 1 comprising a suspension of gas bubbles smaller than 8 microns in a biocompatible aqueous liquid vehicle.
 - 3. Contrast media of claim 1 wherein the gas is sulfur hexafluoride.
 - 4. Contrast media of claim 1/wherein the gas is hexafluoropropylene.
 - 5. Contrast media of claim 1/wherein the gas is octafluoropropane.
 - 6. Contrast media of claim 1 wherein the gas is hexafluoroethane.
 - 7. Contrast media of claim 1 wherein the gas is octafluoro-2-butene.
 - 8. Contrast media of claim 1 wherein the gas is hexafluoro-2-butyne.
- 9. Contrast media of claim 1 wherein the gas is hexafluorobuta-1,3-diene.

- 10. Contrast media of claim 1 wherein the gas is octafluorocyclobutane.
- 11. Contrast media of claim 1 wherein the gas is decafluorobutane.
- 12. Contrast media of claim 1 where the gas is dodecafluoropentane.
 - 13. A method for selecting a gas for use as an ultrasound image-enhancement agent comprising the steps of

determining the solubility, C_s , of the gas in a solution;

determining the density, ρ , of the gas; determining the diffusivity, D, of the gas in the solution;

calculating a Q coefficient where

$$Q = 4.0 \times 10^{-7} \times \rho/C_sD$$

and selecting a gas having a Q coefficient of greater than 5.

14. The method of claim I wherein the diffusivity, D, is determined from the molar volume, Vm, of a gas by the formula

 $D = 13.26 \times 10^{-5} \cdot \eta^{-1.14} \cdot V_{m}^{-.589}$ where η is the solution viscosity (cP).

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